Climate Action Plan Update

Boulder City Council

Study Session

June 8, 2021

Jonathan Koehn

Interim Director

Department of Climate Initiatives

Boulder's Environmental Legacy

CLIMATE SMART
DOING OUR PART.

YES -ON- 202


RECYCLE
ECO-CYCLE


SCIENCE
PURSUING TRUTH SAVING THE WORLD
PROTECTING
SCIENCE
SCIENTISTS SPEAKING TRUTH TO POWER
WE HAVE THE SOLUTION

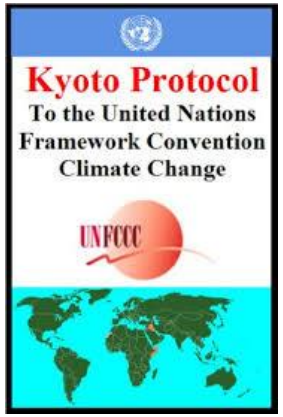

STOP NUCLEAR
WEAPONS
ROCKY
HELL NO
We Won't
GLOW


GIVE
BOULDER
THE
POWER
VOTE YES ON 2B AND 2C


KEEP THE FRACK OUT OF MY WATER
SIERRACLUB.ORG/FRACKING

Boulder's leadership in climate action

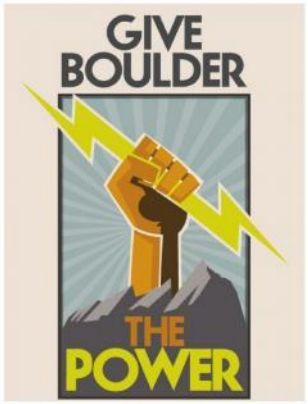
2002



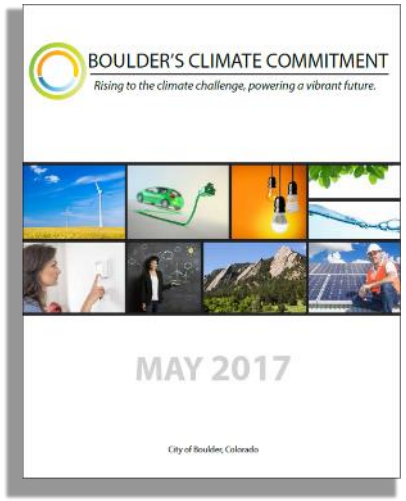
2006

2006

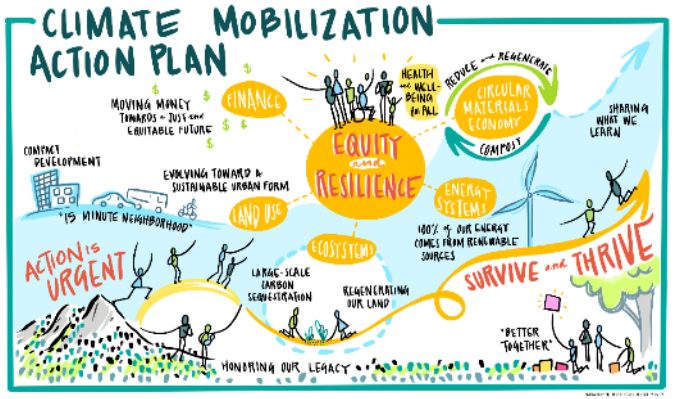
2010



2016



2019



Climate action partners

USDN | urban sustainability directors network

214 cities in North America

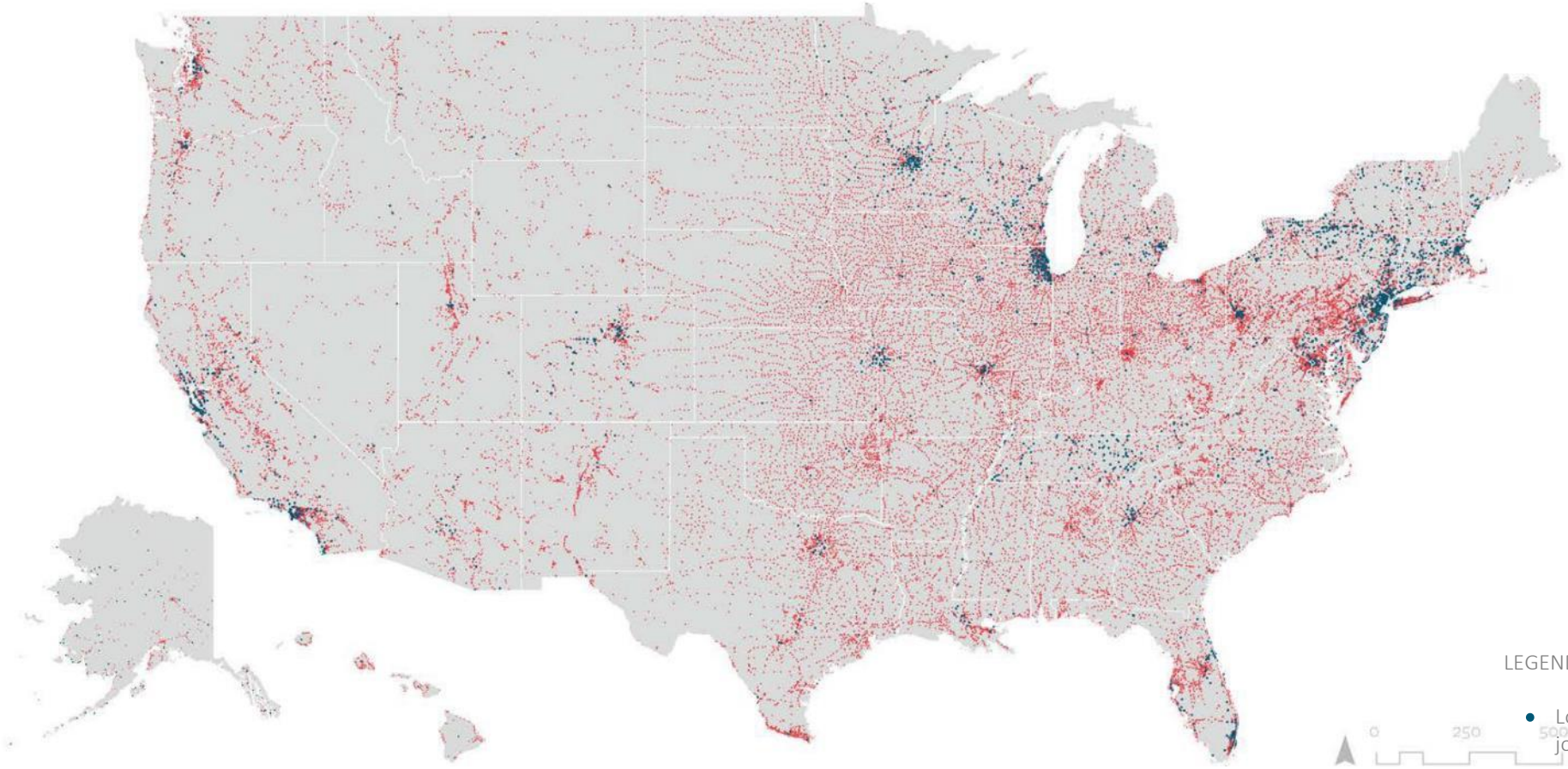
CNCA
CARBON NEUTRAL CITIES ALLIANCE

23 leading global cities

Reflecting on 20 years of Climate Action

Facing the limits of city-based climate action

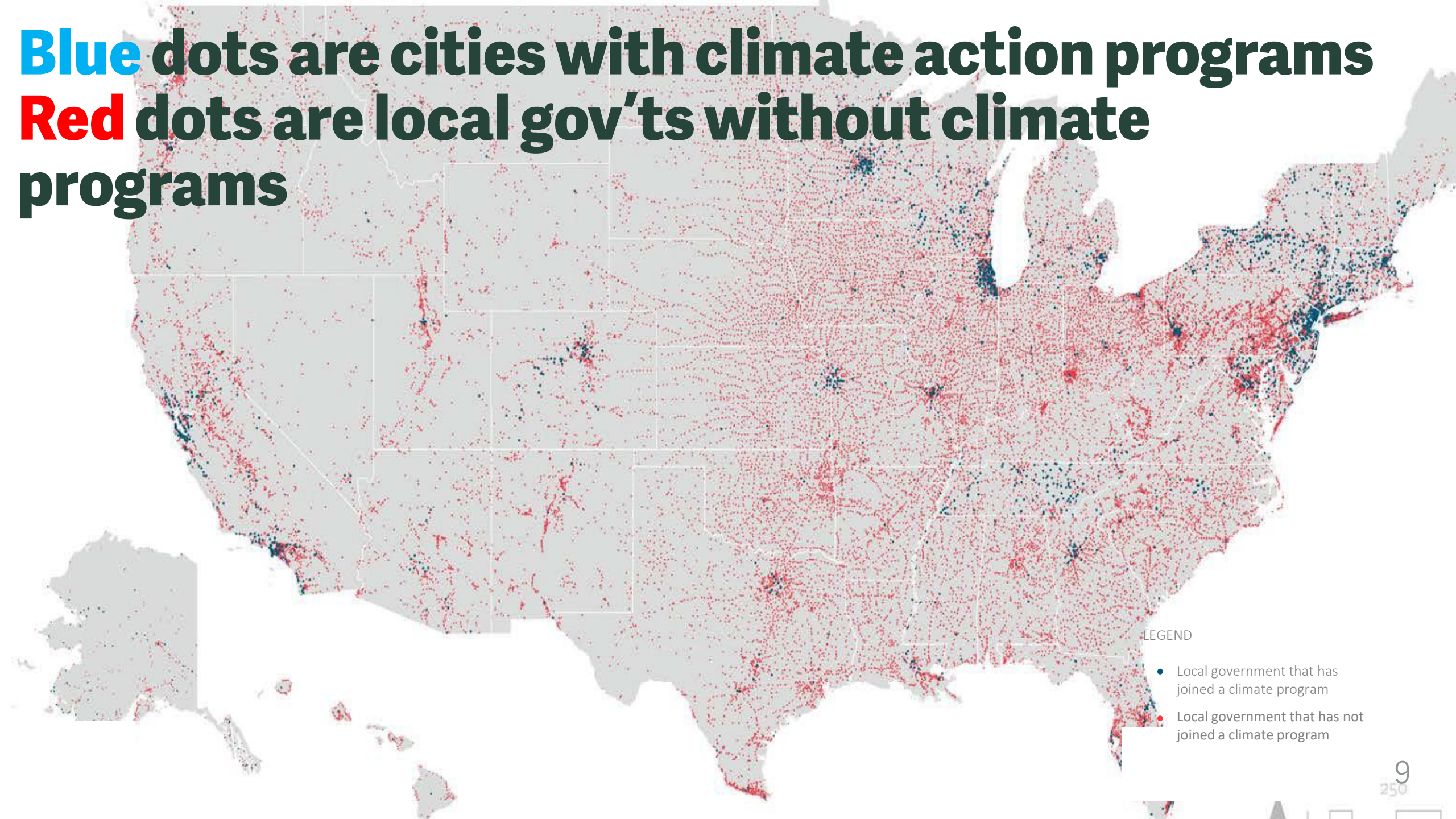
U.S. local government climate program participation (2020 snapshot)



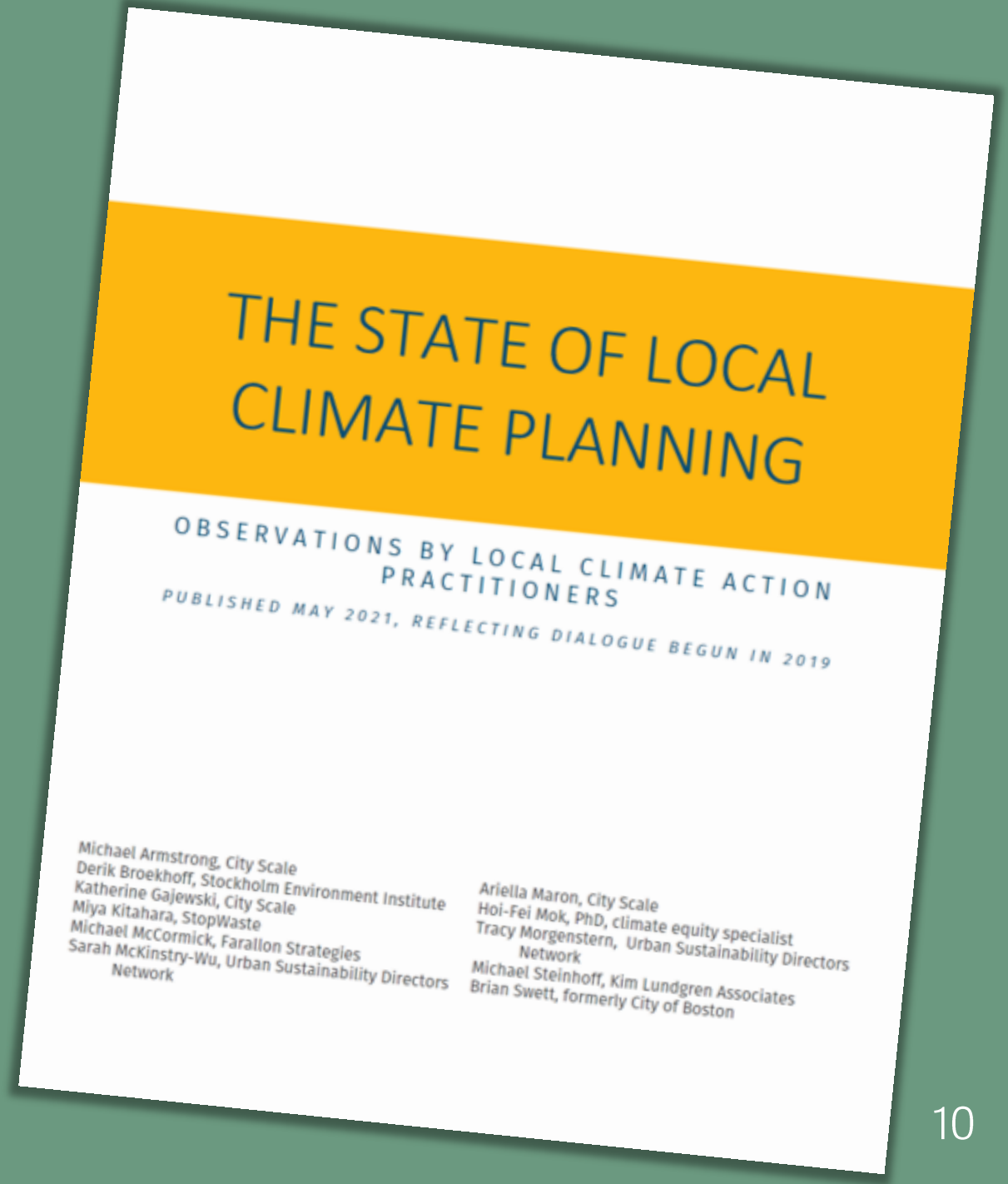
JUST 8% OF U.S. LOCAL GOVERNMENTS HAVE JOINED A CLIMATE PROGRAM

THEY ARE MOSTLY CONCENTRATED IN 25% OF U.S. COUNTIES AND 33% OF METRO AREAS

Blue dots are cities with climate action programs
Red dots are local gov’ts without climate programs



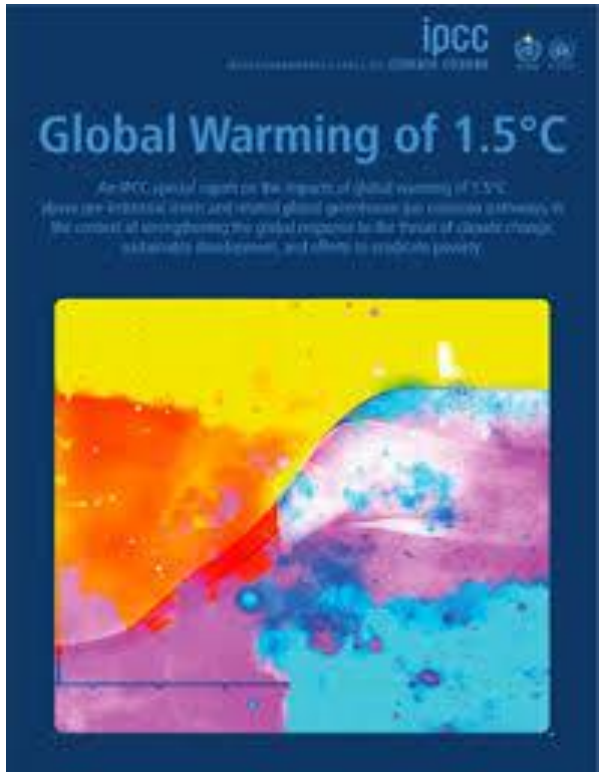
"Despite this deserved recognition (importance of city-based climate action), the past decade plus of mayoral commitments, local climate plans, and intensive city-to-city sharing of best practices has not yet led to rapid transformational GHG reductions."



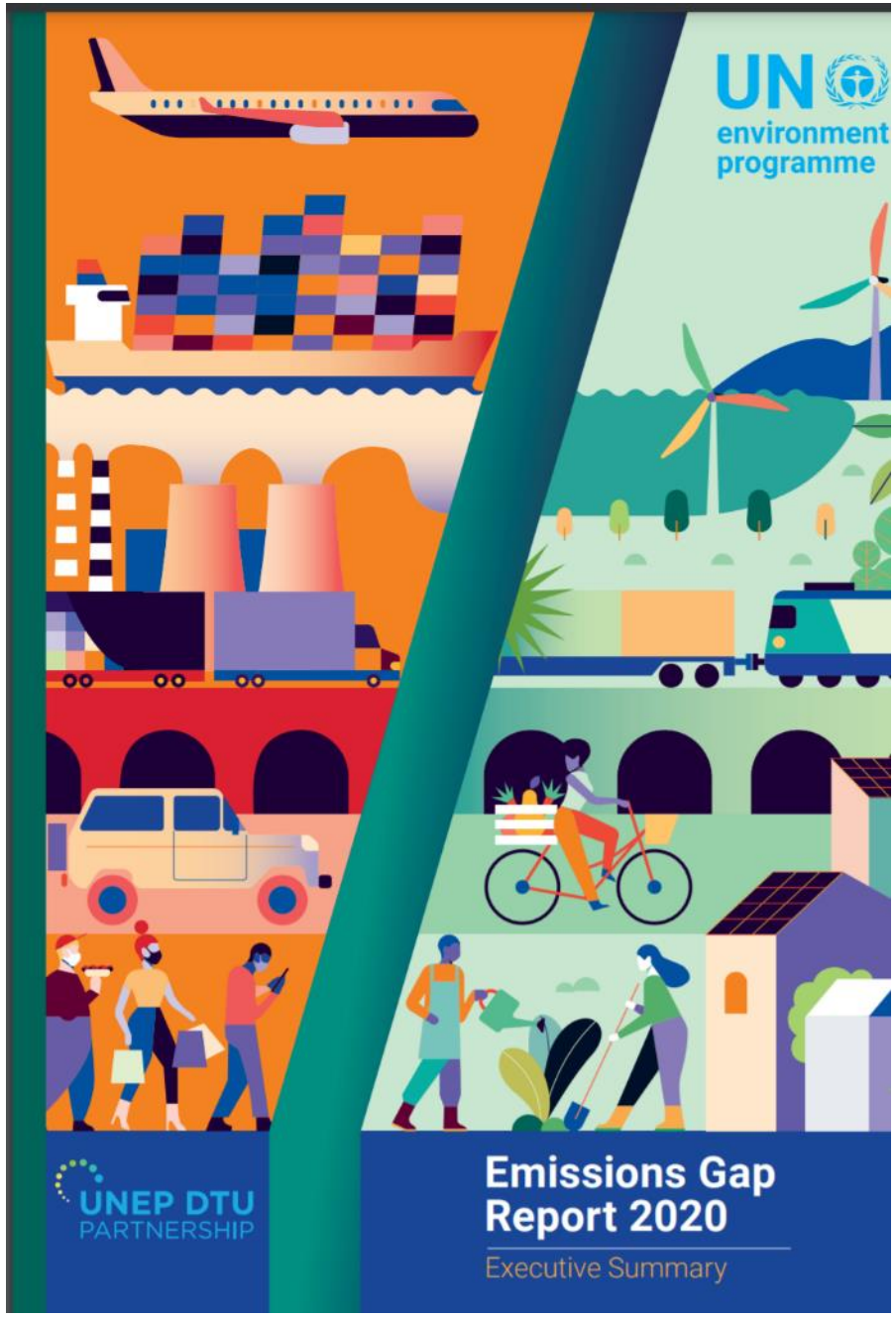
Climate change 2021

The sobering new reality we now face

The climate science



- Climate change is happening faster than expected—we may have less than 12 years to stabilize climate
- Emissions reduction to near zero needs to be achieved by mid-century, but it will not be sufficient to stabilize climate
- Carbon drawdown is now essential and must be expanded rapidly
- Communities must prepare for significant climate change.

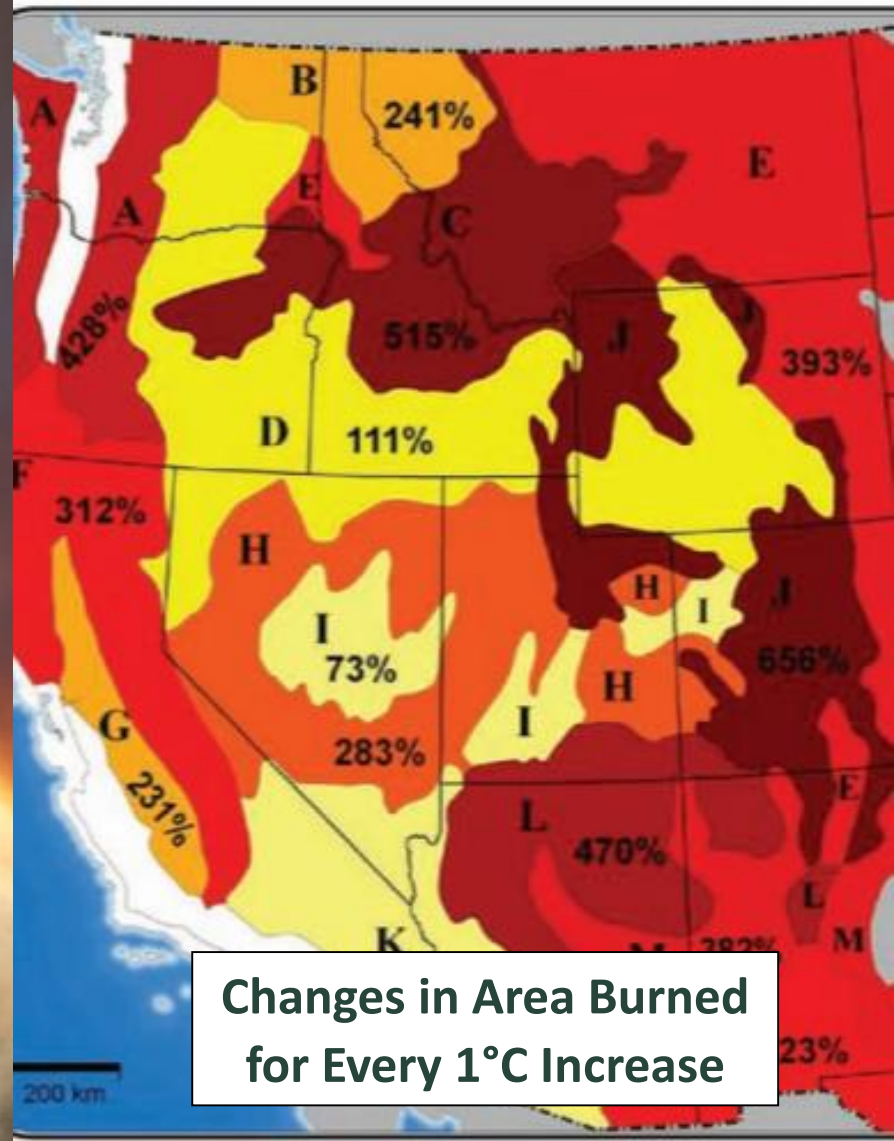


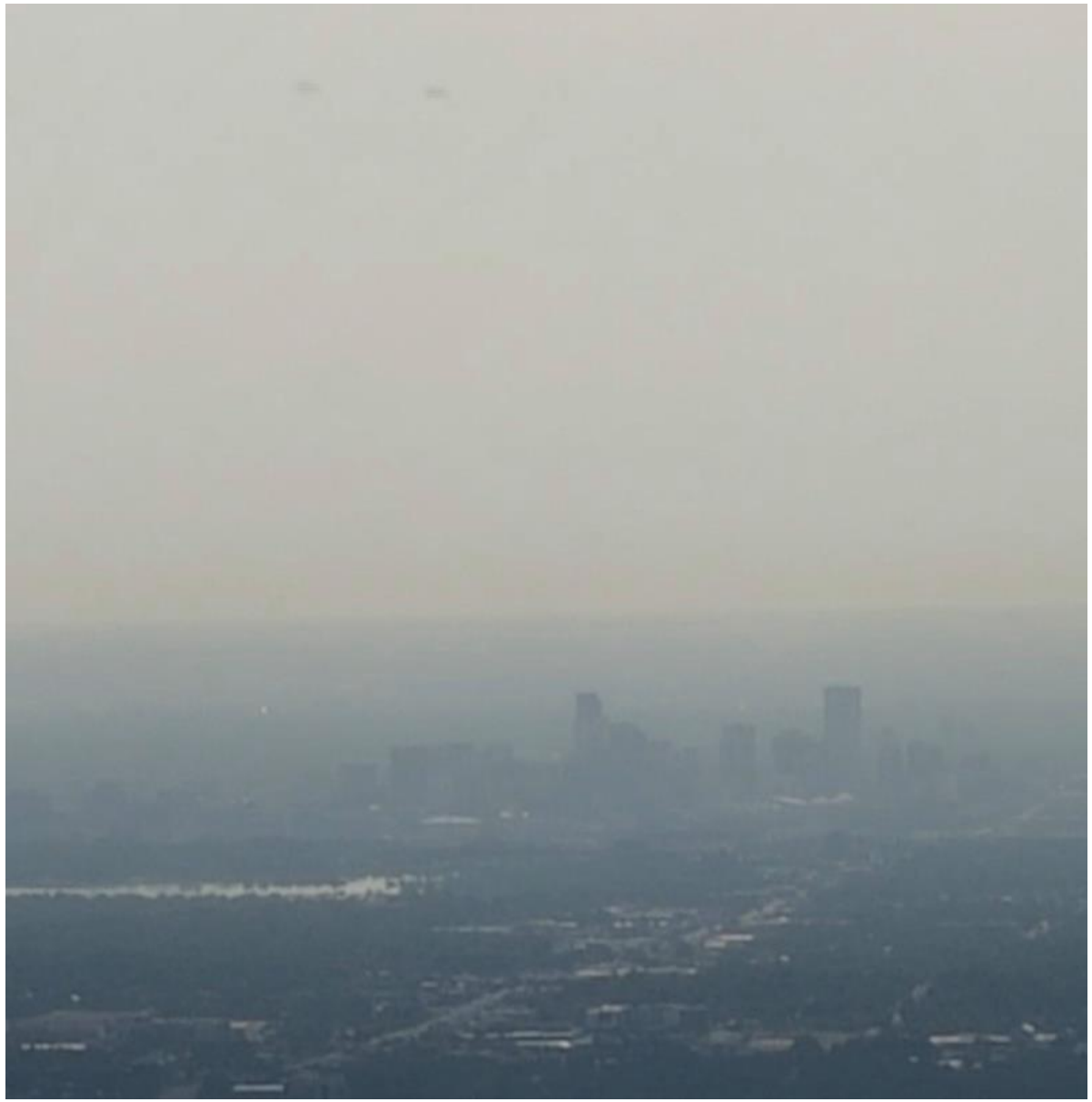
"Current NDCs remain seriously inadequate to achieve the climate goals of the Paris Agreement and would lead to a temperature increase of at least 3°C by the end of the century."

NDC: Nationally Determined Contributions, i.e., nation-state climate commitments


CLIMATE EMERGENCY

At Our Doorsteps





Journal of Exposure Science & Environmental Epidemiology

Review Article | Published: 20 September 2020

Health effects of wildfire smoke in children and pub health tools: a narrative review

Stephanie M. Holm ✉, Mark D. Miller & John R. Balmes

Journal of Exposure Science & Environmental Epidemiology **31**, 1–20 (2021) | Cite this article

7429 Accesses | **1** Citations | **82** Altmetric | Metrics

Abstract

Wildfire smoke is an increasing environmental health threat to which children are particu vulnerable, for both physiologic and behavioral reasons. To address the need for improv public health messaging this review summarizes current knowledge and knowledge gap the health effects of wildfire smoke in children, as well as tools for public health respons aimed at children, including consideration of low-cost sensor data, respirators, and expo in school environments. There is an established literature of health effects in children fro

Record-breaking temperatures

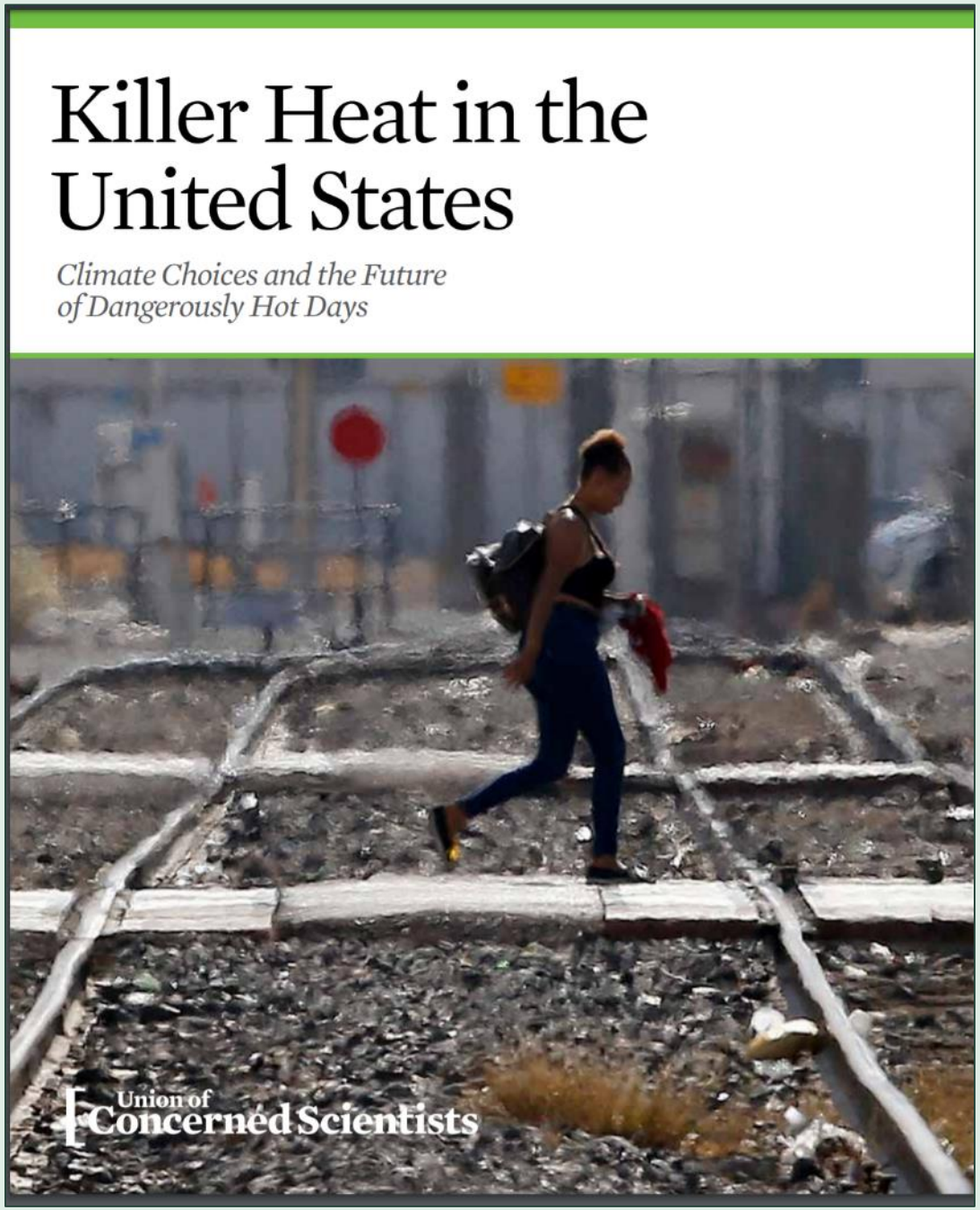
- Oct. 26, 2020: Record LOW
  - 5° F
- Nov. 5, 2020: Record HIGH
  - 79°F

Boulder ties high-temperature records two days in a row

University of Colorado Boulder groundskeeper Matt Schwarz clears off the steps of the Old Main building on Oct. 26 in Boulder. Just over a week after Boulder set new low-temperature records, the city tied high-temperature records Tuesday and Wednesday. (Timothy Hurst/Staff Photographer)

By KIELY WESTHOFF | For the Daily Camera

PUBLISHED: November 4, 2020 at 5:52 p.m. | UPDATED: November 4, 2020 at 5:52 p.m.



- The average number of **days per year** with a heat index **above 100°F** will more than **double**, while the number of days per year **above 105°F will quadruple.**

- **More than 1/3 of the U.S. will experience heat conditions** once per year, on average, that are so extreme they exceed the current NWS heat index range—that is, they are literally **off the charts.**

- Nearly 1/3 of the nation's 481 urban areas with a population of 50,000 people or more will experience an average of **30 or more days per year with a heat index above 105°F**, a rise from just three cities historically (El Centro and Indio, California, and Yuma, Arizona).

Source: Union of Concerned Scientists: "Killer Heat Interactive Tool. (2019)

Climate Action

A new approach to both what we do and how we do it

Expanding the Scope of Climate Action

Climate Stabilization

Equity

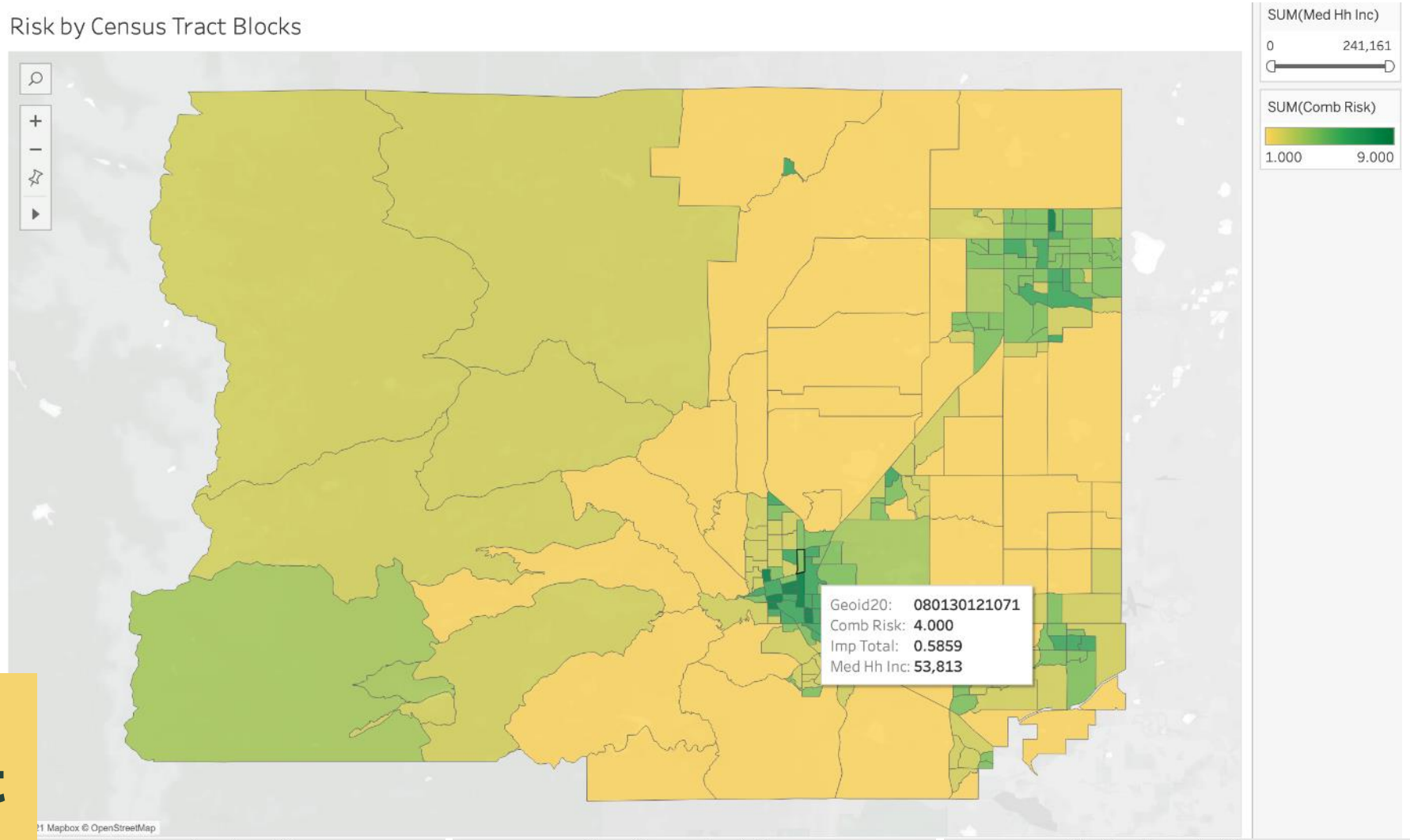
Climate Change Resilience

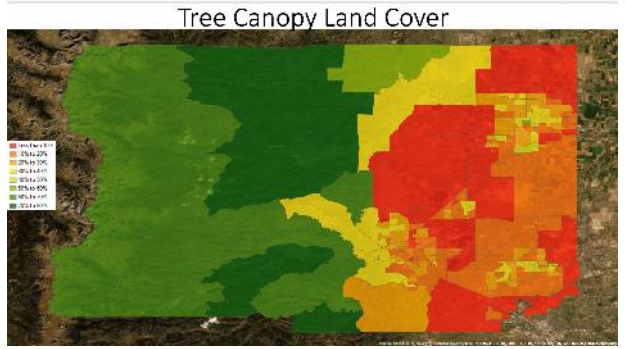
Resilience

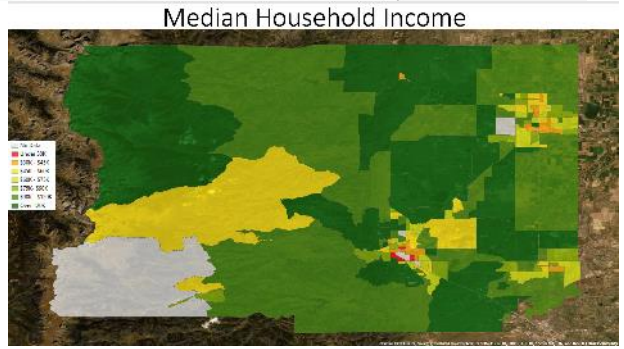
Growing Our Capacity to Absorb, Adapt & Transform

Climate Risk Localization Project

- Neighborhood-level risk analysis
- Address equity in assessment & prioritization







Centering equity in climate action

Core equity design principles

- Inclusive representation
- Equitable distribution of benefits and burdens
- Funding allocation correct for historical inequities
- Represent the interests of future generations

Evolving insights on the causes of climate change

CO2

CO2

CO2

Systems drivers

Economy/Markets


Knowledge & Tech


Policy & Law


Culture & Social Norms

Economy/ Markets

CO2

Energy Systems

CO2

Material Consumption

Knowledge-Tech

CO2

Ecosystems

Policy-Law

Culture & Norms

Example of systems influences: *Getting off gas*

Markets—Methane (NG) is cheap because of subsidies/tax breaks.

Knowledge/Tech—High efficiency heat pumps aren't available for all solutions needed or Tech available but not in the US (markets)

Policy—Continued expansion of methane infrastructure allowed. Full cost & externalities are not captured or enforced.

Norms/Culture—Continued attachment to cooking with gas despite growing research showing serious health impacts.

Getting off gas: a systems approach

Systemic Failure

- Methane is cheap & subsidized
- Heat pumps aren't ready or aren't available in these markets
- Laws & regulations continue to allow methane infrastructure development
- Cultural attachment to cooking with Methane

Local Government Action

- Subsidize electrification actions (Comfort 365 Campaign)
- Multi-jurisdiction work with manufacturers to accelerate development/ availability
- Coordinate legislative action to limit new infrastructure; Remove tax loopholes and subsidies
- Implement education and outreach campaigns to highlight alternatives and describe health risks

Community Guide to Systems Change

	Public Sector	Private Sector	Civic Organizations	Academic/ Research	Individual
					
					
					
					

Community Guide to Systems Change

	Public Sector	Private Sector	Civic Organizations	Academic/ Research
				
				
				
				

Individual

Buycott,
Boycott, Invest,
Divest

Participate in pilot projects
Coordinate community science
Innovate, invent, adopt

Participate in policy development
Lobby/advocate
Vote!

Write letters to the editor
Start/participate in community dialogues
Communicate with others outside our community
Be visible, be heard, be engaged
Listen to opposing views

Systems change in practice

Systems change: Policy innovation

Systems Change: Legal Systems

Climate Lawsuits, Once Limited to the Coasts, Jump Inland

April 18th, 2018

The New York Times

A rally in Boulder, Colo., where a lawsuit against oil and gas companies was announced Tuesday. Jeremy Papasso/Boulder Daily Camera

THE WALL STREET JOURNAL.

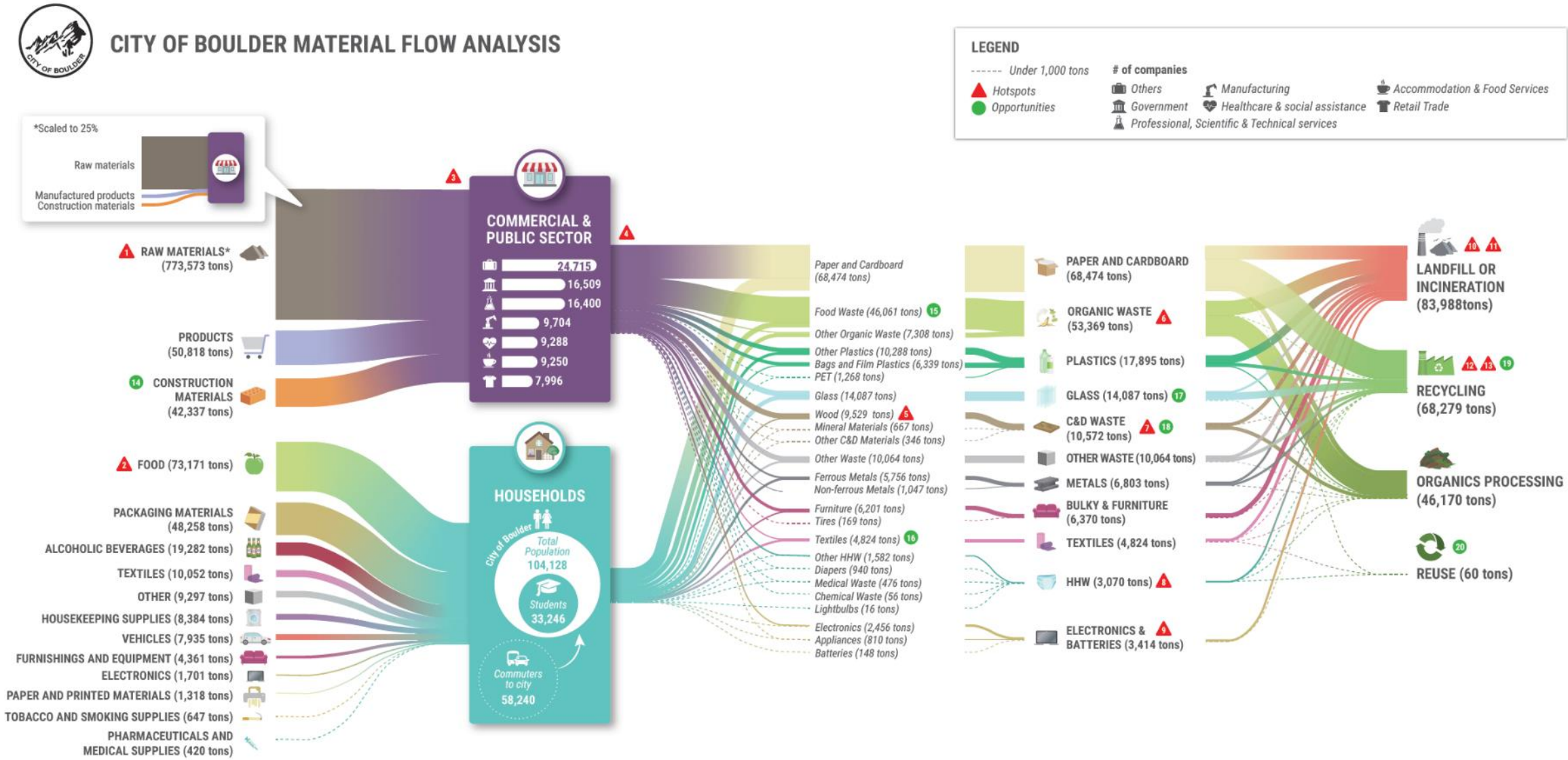
May 27th, 2021

BUSINESS

Oil Giants Are Dealt Major Defeats on Climate Change as Pressures Intensify

Shell and Exxon lose landmark decisions on the same day, demonstrating growing threats to fossil-fuel companies from activists and investors

Systems change: Circular economy



Bloomberg Philanthropies

Circular Economy Systems Change

Biochar-enhanced urban forest expansion

Participating Cities: Stockholm, Helsinki, Minneapolis, Cleveland, Boulder

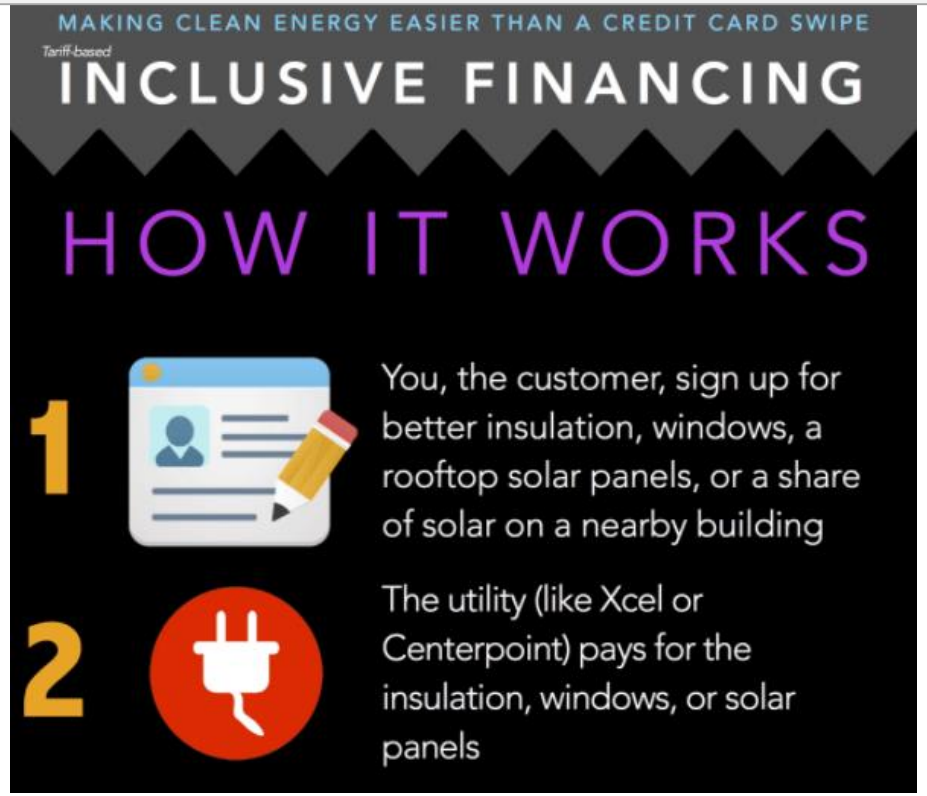
CNCA

CARBON NEUTRAL CITIES ALLIANCE

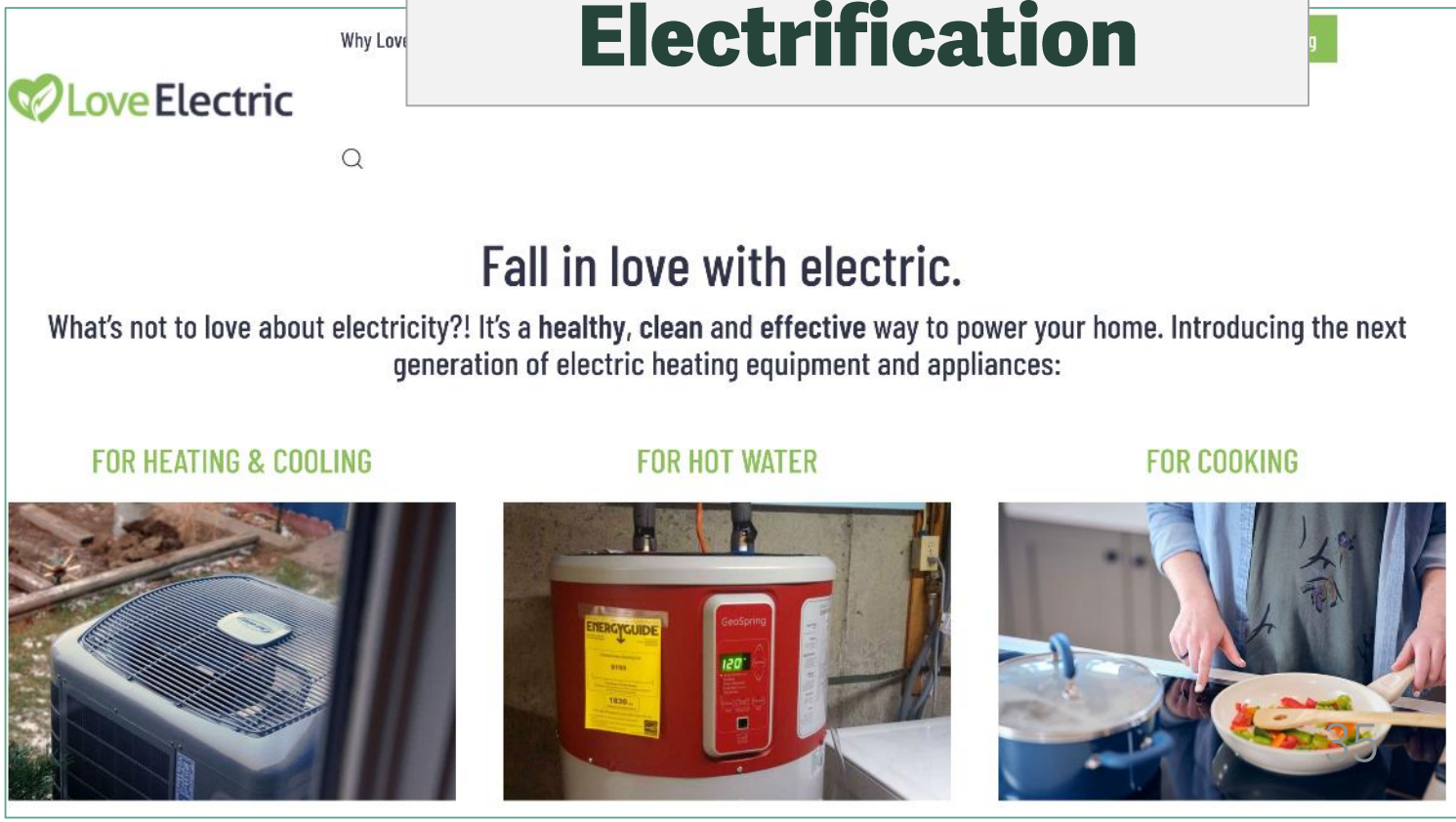
Systems Change: Energy Systems

Utility Innovation

Tariff-Based Financing

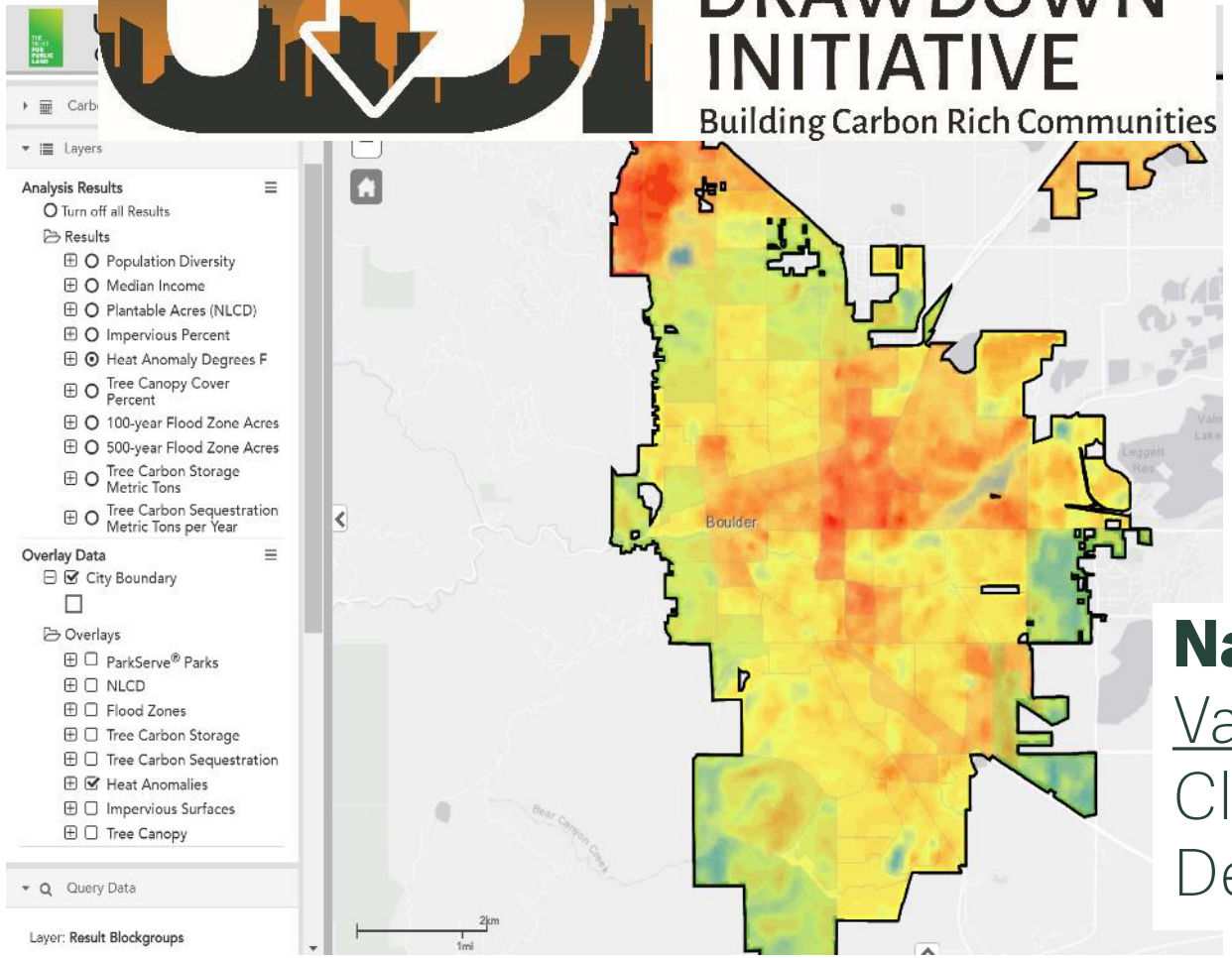


Electrification



Systems Change: Ecosystems

URBAN DRAWDOWN INITIATIVE
Building Carbon Rich Communities



TREES FOR COMMUNITY RECOVERY
JOBS | HEALTH | EQUITY

National Urban Forest Campaign:
Vanguard Cities: Newark, Pittsburgh, Cleveland, Minneapolis, Chicago, Denver, Boulder, San Francisco

Systems Change: Economic & Financial Systems

Co-Sponsors:

CNCA
CARBON NEUTRAL CITIES ALLIANCE

USDN urban sustainability directors network

City of Boulder Climate Initiatives

Boulder County Sustainability, Climate Action & Resilience

BIONEERS

Conference on World Affairs
UNIVERSITY OF COLORADO BOULDER

Preparing for the 2025 Major Update

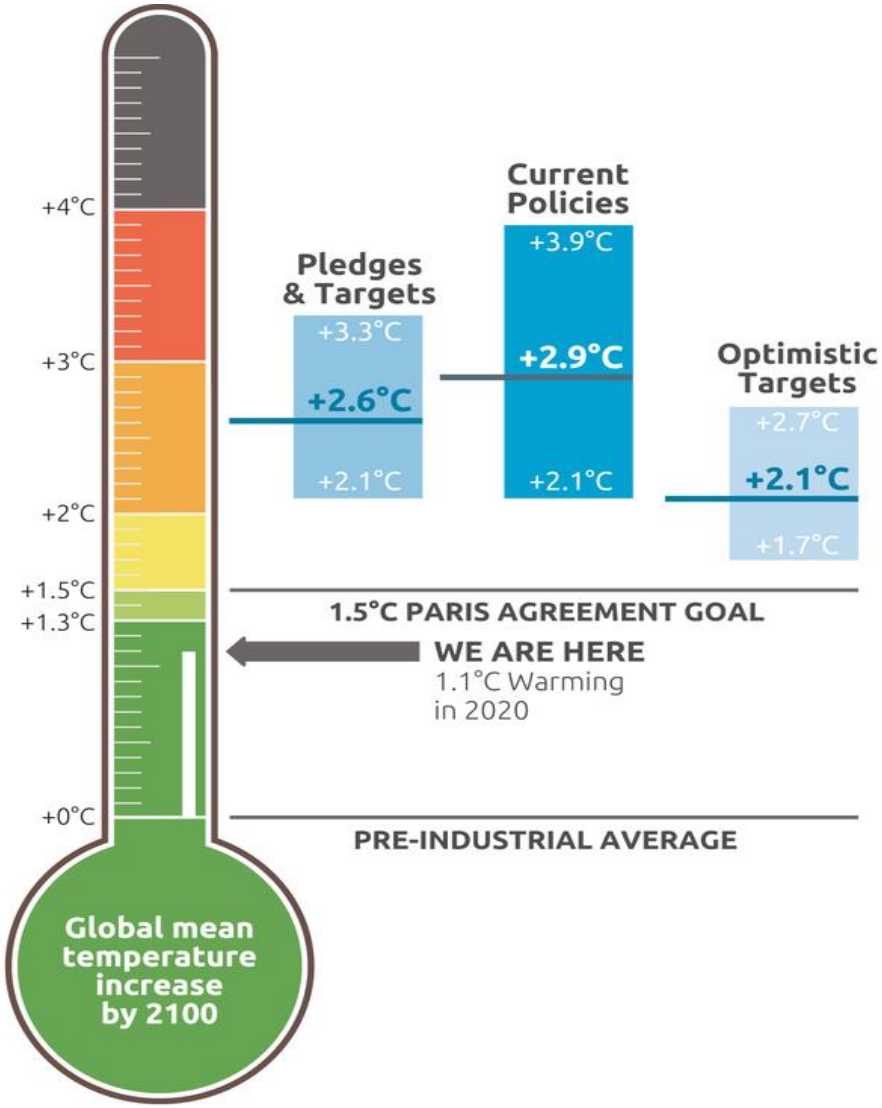
A systems-based framework for goals and targets

Our Carbon Budget is Limited

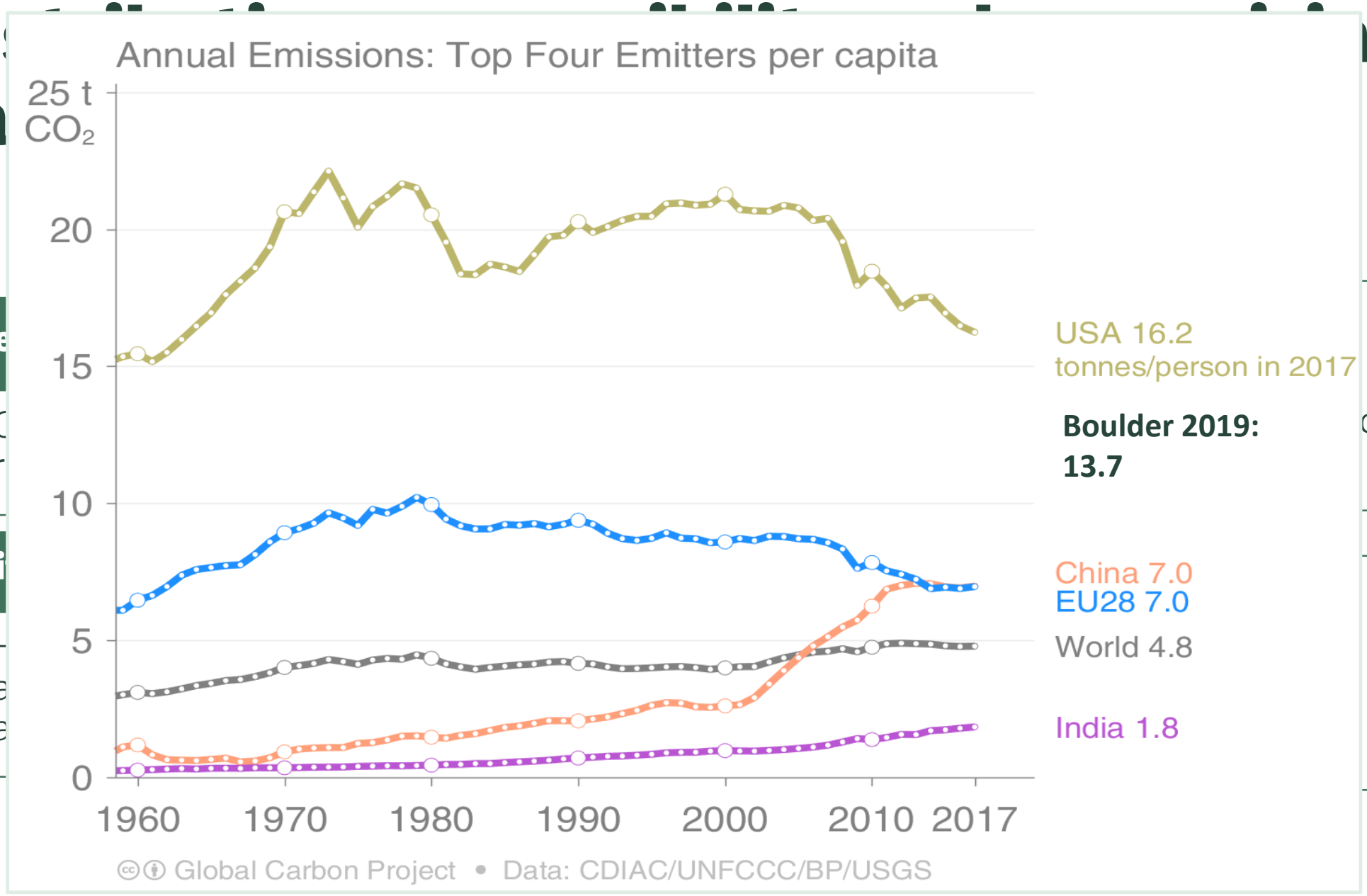
- ✓ We must remain under 1.5°C to avoid catastrophic levels of warming

What this Means for Target Setting

- ✓ For a **"likely" (66%) chance**, the global community must get to net zero global emissions about ten years earlier, by 2035-2040
- ✓ The chances of limiting warming to 1.5°C depends significantly on **how soon the highest emitters reach net-zero emissions.**
- ✓ Equity-related considerations



Di[illegible] ca[illegible]g



Re

- C
  r

omic

Ci

- H
  a
  a

Proposed Climate Stabilization Targets

Prior Mitigation Targets Under Climate Commitment (2016)

- 15% emissions reduction by 2020 compared to a 2005 baseline
- 50% emissions reduction by 2030 compared to a 2005 baseline
- 80% emissions reduction by 2050 compared to a 2005 baseline

Proposed Mitigation Targets Under Climate Action Plan Update

- 70% emissions reduction by 2030 compared to a 2018 baseline
- Become a net-zero city by 2035
- Become a carbon-positive city by 2040

Changing how we measure success

- ✓**Cities will not be able to achieve climate neutrality alone, nor will the success of a few cities alone be enough**

- ✓**It's not just about mitigation.** Climate stabilization (mitigation) and climate change resilience (adaptation) are equal core pillars, integrated with equity principals.

- ✓**Addressing gaps in previous carbon accounting.** Integration of carbon sequestration and consumption-based emissions into our emissions inventory process going forward.

Objectives and targets by focus area

Regenerative Ecosystems Objectives

Increase natural carbon sequestration within and beyond our boundaries.

Advance the field of natural climate solutions beyond Boulder.

Foster community resilience through carbon enhanced ecosystem services.

Design actions to maximize equitable ecosystem benefits.

Support the growth of economic sectors that sustain critical ecosystem services.

Regenerative ecosystems

Design actions to maximize equitable ecosystem benefits

- Reach 20% tree canopy by 2035, targeting heat vulnerable neighborhoods
- Reduce urban heat island in at risk neighborhoods by 1°C by 2030

Energy Systems Objectives

Establish a safe, healthy, and resilient fossil-fuel-free energy system.

Ensure equitable and affordable access to energy.

Eliminate operational carbon from our existing building stock.

Achieve Net Zero carbon in new construction.

Provide clean mobility solutions that meet community needs.

Energy Systems

Ensuring equitable and affordable access to energy

- 100% of our community members will have access to basic heating, cooling and energy needs by 2035
- Clean mobility options will be culturally, geographically, and economically diverse by 2035
- Our energy system will deliver 100% renewable electricity by 2030 and strive to meet the resiliency and reliability needs of the community

Today, more than 10% of Colorado residents are considered energy impoverished (spend 10% of their income on energy bills).

By 2035, our goal is that no one spends more than 4% of their income on energy bills.

Circular Materials Economy Objectives

Minimize waste production per capita while maximizing diversion from landfills.

Make the repair, reuse, and remanufacturing of components and materials easier and more accessible.

Establish an economic basis for circular entrepreneurship and innovation.

Employ circular principals in building construction and demolition.

Reduce the carbon footprint of production cycles we have the greatest ability to affect.

Circular Materials Economy

Make the repair, reuse, and remanufacturing of components and materials easier and more accessible.

- Foster community and entrepreneurial partnerships and platforms to promote repair and reuse by 2030.
- Increase participation in sharing platforms 30% over a 2020 baseline to foster equitable access to goods and services over ownership by 2030.
- Materials and products are designed to last with the ability to recycle, reuse, repair or remanufacture at the end of product life by 2030.

Milestones and community engagement

Key milestones

- Summer 2021
  Return to council with a **resolution** to adopt new climate goals.
- Fall 2021
  Release a progress report and **strategies for climate action** to the community in the fall.
- December 2021
  Return to council to review the prioritized set of proposed city organization climate action strategies as well as **funding strategies** to support this work.

Communication and Engagement

- Tracks the milestones
- Ongoing and flexible, reflecting the need for continuous refinement of the city's climate action priorities and strategies (Phases)
- Variety of tactics and deliverables
- Periodic virtual engagement events, public project updates, activation of Be Heard Boulder page.

EAB feedback: June 2, 2021

Systems focused vs individual action

- Make sure the focus on systems-based action doesn't disempower or dismiss the importance of individual action

Limited adoption by other communities

- How are we going to create systems change if only 8% of communities--25% of Counties have adopted climate action efforts?

Recognizing and addressing the influence of economic interests in pushing back against climate action

- How are our strategies prepared for resistance from economic interests that might be threatened by proposed actions?

Alignment of local policy with the focus on systems change and preparation for climate change

- How are we aligning major decisions around things like land use and building regulations with the systems change and climate change preparation imperatives outlined in this document?

Integration with state level action around climate change

- How are the city's actions being aligned with State efforts?
- Is the state's position on climate action supporting and reinforcing Boulder's efforts or are they in places in conflict?

Importance of carbon drawdown

- How can the city accelerate/expand its efforts to utilize natural climate sinks/drawdown as part of its strategies?
- Are their ways the city could be working with the University or Federal labs to stimulate innovation around carbon capture and utilization?

Value of city investments in climate action

- How are the city's investments in climate action benefiting the community?
- How is Boulder better off than other communities who have not adopted climate action efforts?

Questions for Council

1. Does council agree with the proposed new systems-based goals, targets, and progress indicators? What other measures of progress should be tracked?
2. Does council have feedback on the equity design principles? Are there principles that are missing?
3. Does council support staff returning in August with a resolution to formally adopt the climate mitigation and adaptation goals, and the equity design principles?
4. Does council have any feedback on the framework for clarifying the role of cities in addressing climate action goals and how this work could extend beyond municipal boundaries?
5. Are there specific strategies, investment priorities or revenue considerations that staff should consider as they prepare for the December 2021 Study Session?